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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,542	01/23/2006	**Oliver Huttenloch**	283044US0PCT	2085

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EXAMINER
CUTLIFF, YATE KAI RENE

ART UNIT	PAPER NUMBER
1621	

NOTIFICATION DATE	DELIVERY MODE
08/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/565,542	HUTTENLOCH ET AL.	
	Examiner	Art Unit	
	YATE' K. CUTLIFF	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1 - 20 are pending.

Claims 1 - 20 are rejected.

Response to Amendment

2. The amendment to claims 1, 6 and 15 - 18, submitted May 27, 2008 is acknowledged and entered.

Response to Arguments

3. Applicant's arguments, see page 1, filed May 27, 2008, with respect to claims 6, and 16-18 have been fully considered and are persuasive. The 112 second paragraph rejection of claims 6 and 16-18 has been withdrawn due to the amendment to the claims.

4. Applicant's arguments filed May 27, 2008 have been fully considered but they are not persuasive for the reasons set out below.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leppard et al. (US 6,888,031) in view of Mann et al. (US 4,751,321), and further in view of Macas (US 5,318,228).

9. The rejected claims cover, inter alia, a process for preparation of acylphospnlnes of formula (I) where m, R1, R2, R3 are as defined in claim 1; by reacting an organic phosphorus halide of formula (II) with Y as defined in claim 1; with sodium in a solvent in the presence of an activator and the sodium is pre-sent in the form of a dispersion of sodium particles of a mean particle size less than or equal to 500 μm in the solvent; subsequent reaction with an acid halide of formula (III); and the process is carried out without isolation of the intermediate; and the activator is selected from the group consisting of aliphatic alcohols having 1 to 10 carbon atoms, aromatic

chlorohydrocarbons, aliphatic chlorohydrocarbons, aromatic bromohydrocarbons, aliphatic bromohgdrocarbons, and combinations thereof.

Dependent claim 2, further limits R1, R2 and R3 to be independently from each other phenyl, naphthyl and biphenyl, and being unsubstituted or substituted by one to five halogen, C1-C8 alky and/or C1-C8 alkoxy. With clam 3 limiting R1 and R3 to phenyl and R2 to 2,4,6,-trimethylphenyl.

Dependent clams 4, 9, 10 and 11 identify the activator as chlorobenzene and/or n-butanol or combination thereof. Dependent claims 5, 12 13 and 14 disclose that the sodium is dispersed via a high speed turbine stirrer. Dependent claims 6, 15, 16, 17 and 18 disclose the atom equivalents for the sodium. Dependent claims 7, 8, 19 and 20 identify the reaction temperatures.

Leppard et al. teaches the process for making acylphosphines having a formula (I) by reacting a phosphorous halide of formula (II) with an alkali metal or with magnesium in combination with lithium, or with mixtures thereof, where appropriate in the presence of a catalyst; and subsequent reaction with an acid halide for formula (III); and wherein the process is carried out without isolation of the intermediates. The R substituents, Y substituents, m and n are identically defined as in Applicant's claimed invention. (see columns 1, 2 & 3). Further, the process for preparing the mono- and bisacylphosphines, an organic phosphorus halide (II) is first reacted with an alkali metal, a metalized phosphine (IIa) is formed via different intermediary steps. (see column 5, lines 62—66). The alkali metal used in the intermediate step can be sodium which is employed in atom equivalents from 4 to 6 or 2 to 3. (see column 6, line 11-23). The

reaction temperature ranges from -20°C to +120°C. (see column 6, lines 37-38). The-catalyst (activator), if used, can be an aromatic hydrocarbon. (see column 6, lines 39-44).

Leppard et al. fails to disclose that the sodium is dispersed in the group consisting of aliphatic alcohols having 1 to 10 carbon atoms, aromatic chlorohydrocarbons, aliphatic chlorohydrocarbons, aromatic bromohydrocarbons, aliphatic bromohgdrocarbons, and combinations thereof; the particulate size of the sodium particles; and the use of a high speed stirrer.

However, Mann et al. teaches a process for the production of phosphinites and phosphonites that uses sodium aryl produced by dispersing the sodium in an inert liquid medium for example a hydrocarbon medium, the dispersion may be carried out with the aid of ultrasonic vibration but is readily carried out by agitation of the molten sodium with the inert liquid medium. (see column 2, lines 6-12). The sodium particles are smaller than 100 μm and preferably smaller than 50 μm. (see column 2, lines 24-26). The sodium may be reacted with a bromo or chloroaromatic compound corresponding to the desired aryl. (see column 2, lines 27-29). Mann et al. does not explicitly use a high speed turbine stirrer however, the use of high speed agitation would be an option available to the skilled artisan since it is within the knowledge of the ordinary person skilled in the art.

Mann et al. fails to disclose sodium dispersion in alcohol as the activator in the sodium dispersion process.

However, Macas discloses a sodium dispersion process and states that known dispersion agents include high molecular weight alcohols. (see column 4, lines 24 - 27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a dispersion of sodium prepared as suggested by Mann et al. or Macas in the process of Leppard et al.; since sodium dispersion when used as reagent is in a solvent or other dispersion agents. The particle size of the sodium, as suggested by Mann et al and Macas, is usually less than 500 μm. Further, Leppard teaches that the process for preparing the acylphosphines includes an intermediary step that reacts organic phosphorus halide with an alkali metal such as sodium in the process for preparing acylphosphines. The skilled artesian would be motivated to utilize the sodium dispersion techniques of Mann et al. or Macas in the process of Leppard et al. since it is known that the intermediary step is required, and the technique disclosed by Leppard et al. allows one to utilize sodium dispersion to make the acylphosphines.

Therefore, the invention as a whole was *prima facie* obvious because a person of ordinary skill in the art at the time the invention was made, would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success.

With regards to Applicant's claimed particle size of less than 500 μm for the sodium particles. Selection of particle size is not patentable modification in the absence of unobvious results. In re Rose, 105 USPQ 237 (CCPA 1955).

Rejection Under 35 USC 103

10. Applicant respectfully asserts that the combination of the Mann and Leppard do not describe or suggest all of the features of the invention of claim 1, and the claims depending therefrom. Specifically, because the compounds prepared by the processes of Mann and Leppard are different compound types prepared by different reaction ingredients, one of ordinary skill would not be motivated to combine the references.

The Mann reference shows that known dispersions agents for sodium include bromo and chloroaromatic compounds (aromatic hydocarbons). "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). See also In re Sneed, 710 F.2d 1544, 1550, 218 USPQ 385, 389 (Fed. Cir. 1983) ("[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.");

Further, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Leppard et al. teaches that the sodium particle can be dispersed in a solvent and a

catalyst. The prior art references of Mann et al. and Macas discloses the known dispersion agents for sodium particles, as well as the known particle sizes for sodium dispersed in a dispersion agent.

The difference between the Leppard et al. reference and the claimed invention is that it does not teach the invention with particularity so as to amount to anticipation, only because of the dispersion agents used for the sodium particles. However, Mann discloses the use of bromo and chloroaromatic compounds (aromatic hydocarbons) as dispersion agents for the sodium.

11. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leppard et al. (US 6,888,031) in view of Mann et al. (US 4,751,321); for the reasons given in the previous Office Action, mailed March 18, 2008.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YATE' K. CUTLIFF whose telephone number is (571)272-9067. The examiner can normally be reached on M-TH 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel M. Sullivan can be reached on (571) 272 - 0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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